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TRANSLATIONS ON USSR ECONOMIC AFFAIRS

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KOSYGIN BACKED ECONOMIC EXPERIMENT HALTED

Results of Experiment

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in
Russian No 3, 1978 pp 172-174

/Article: "Attention--an Experiment!"/

/Text/ In May 1965, that is, even before the practical implementation of the decisions of the September (1965) CC CPSU Plenum, three enterprises of Glavmosavtotrans /Main Administration of Motor Transportation of the Moscow Gorispolkom/ were tentatively converted to new conditions of management: only one indicator was established for them--the amount of the deductions from the profit for the budget, and a list of obligatory clientele was established. Of the above plan profit 60 percent was left at the disposal of the enterprises, they solved themselves the question of the use of this profit, determined themselves the level of the wages of their own workers and obtained the right to provide incentives from their own funds to those clients who helped to increase the efficiency of the use of means of transportation. The experiment yielded splendid results: in one year the profit at these enterprises increased 2.1-fold, the profitability increased from 10.7 to 21.7 percent, the freight volume increased by 12 percent and labor productivity increased by 27 percent. The average wage increased correspondingly (24.7 percent).

A year later, in 1966, the group of motor transport managements, which had been converted to the new conditions, was enlarged, but their rights were slightly restricted and the number of obligatory indicators increased. This immediately affected the results. In 1967 the growth rate of the freight volumes and profit decreased respectively to 7 and 27 percent, in 1968 they were 5 and 16 percent, in 1969--4.5 and 8 percent. The cited figures pertain no longer to the individual enterprises, but to the main administration as a whole: starting in 1967 Glavmosavtotrans was completely converted to the new system of planning and economic stimulation.

In January 1971 EKO told about the initial stages of the experiment at Glavmosavtotrans under the heading "Tribune of the Plant Economist." The

materials spoke not only about the experiment, but also about the need for the further improvement of the system of plan indicators for the main administration.

The main shortcoming discovered during those years in the main administration is the lack of interest of the enterprises in assuming stepped-up plans. The planned targets for the enterprises, as before, were often revised and made more rigid, the evaluation of the activity of the collectives depended on the degree of fulfillment of the planned targets, without regard for their intensity. The bonus system was organized according to this very principle. The incentive funds depended on the wage fund and did not stimulate enterprises to increase labor productivity.

It was necessary to eliminate the noted shortcomings during the experiment. In ascribing great importance to this, the government adopted in April 1970 a decision on the further improvement of the conditions of planning and stimulation at Glavmosavtotrans. Now during the five-year plan for 1971-1975 there were established for the main administration: the total amount of revenue, the profit and the amount of payments to the budget, the total amount of capital investments, the placement of fixed production capital into operation and the volumes of basic deliveries to the main administration to assure operation and construction. In the annual plans the Moscow Gorispolkom established for the main administration only four indicators: the volume of freight traffic in conformity with contracts; the amount of industrial production sold outside the main administration; the volume of contractual construction operations; the volume of deliveries of material and technical resources to the main administration itself. The main administration planned independently (within the assignments of the five-year plan) all the remaining indicators (revenues, profit and others).

The second stage of the experiment at Glavmosavtotrans was reflected in EKO, No 4, 1976. A. L. Finkel'shteyn, chief of the economic administration of the main administration, and V. P. Pavlova, chief of the administration of finance, prices and rates, made statements in the journal.

As was stated, the goal of this stage of the experiment at Glavmosavtotrans was to force the enterprises to assume more stepped-up plans. And here is the result. Beginning in 1972 the intensity of the annual plans of the main administration on the total amount of the profits was increased as against the indicators stipulated in the five-year plan in the following manner: 1972--1.1 percent, 1973--5.5 percent; 1974--8.4 percent, 1975--9.2 percent.

Stable planned targets for all the years of the five-year plan were the basis of this new stage of the experiment at Glavmosavtotrans. By having such a stable plan, the manager of the enterprise was not afraid of putting production reserves to work. In different years from 31.6 to 48.4 kopecks from each ruble of profit were left at the disposal of the main administration and the enterprises. And if you assumed a higher plan on the profit

than was incorporated in the five-year plan, for each percent of its fulfillment you are credited with approximately seven times more bonus money than for the overfulfillment of the approved plan. Thus, the interest in stepped-up plans was ensured.

During the first four years of the effect of these new conditions the profit volume of Glavmosavtotrans increased by 50 percent, while the amount of the bonuses of managers, engineering and technical personnel and employees increased by 24 percent. The amounts of the bonuses issued to workers from the wage fund increased by 20 percent, and from the economic incentive fund 1.5-fold. The increase of labor productivity per worker exceeded by 2.4 times the increase of the average monthly wage.

Such were the progressive trends of management at Glavmosavtotrans, which had formed by the time that the arbitrary interference of the superior organ--the Moscow Gorispolkom--in its economic activity began.

The feature article which we are publishing below tells about how this came about and what ideas it evokes. It seems to us that the importance of the problems raised in the feature article of A. Nezhnyy is not limited to the experiment at Glavmosavtotrans. However, let the reader judge for himself.

End of the Experiment

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 8, 1978 pp 175-192

/Article by journalist Aleksandr Nezhnyy, special correspondent of the newspaper TRUD: "Point of Rest: On the Purity and Integrity of the Experiment"/

/Text/ It has been established that experience is the best teacher. One of my acquaintances, now the chief of the main administration, in the recent past the director of a plant, expressed this idea more specifically.

"When it is necessary," he said, "to teach a child not to touch a hot iron, it is sufficient to let him touch it just once...."

His position is closely connected with practice. Once, in the heat of youth, conceit and ambition, he put all the reserves of his enterprise into operation, considerably overfulfilled the plan and, having become a hero for hardly more than an hour, received for the following year in the plan a 12-percent increase from what had already been achieved. Precisely then he understood why a bird in the hand is worth two in the bush, and for ever promised not to overstep the line beyond which today's success threatens to turn into tomorrow's downfall.

I recall almost word for word one passionate argument.

"No, no!" the director said. "A stable five-year plan, fixed targets by years, standards--all this is an enticement.... A worm for a crucian,

that is what it is! We will now squeeze everything out of ourselves, and in a year we will be forced to waltz from what has been achieved. I beg to differ! I tried out these things, all these experiments, thank God, 10 years ago. There they all, at the main administration, are great scholars. But while I am director and responsible for the enterprise, I will not play their games!"

Thus said the director of one of the garages of Glavmosavtotrans, rejecting with a gesture of the hand the objections of the chief economist. A woman with a strong character and with her own point of view on all questions of management was working at that time at the garage as the chief economist.

"You are taking a risk, Mikhail Petrovich," she remarked with obvious disapproval.

"What? If you are talking about lightning from above, are we not building some lightning rod, huh?..."

Without raising an eyebrow in response to the director's suggestion about a lighting rod, she continued with the same coldness:

"You are risking our bonuses at least. With the current potentials! When have we had such a capacity of the pool? We have asked for new vehicles--they will give them right before the start of the year."

"You never can tell," the director muttered.

"They will! This experiment, do you know what it is based on?"

"I should say so! On the desire to fleece us--that is what!"

"No, on integrity, Mikhail Petrovich. And I respect for this those who have elaborated its conditions. But you and I are still contriving.... With our potentials it is a disgrace to assume only a 6-percent increase of the profit! Fifteen is within our power."

"Anna Borisovna," the director interrupted her and rose from the table. "There is a time to argue--and a time to act. Frankly, I do not believe these promises and do not advise you to believe them. It is one thing on paper, and another in life. That is all!"

You must have understood: an economic experiment, which was clearly not to the liking of Mikhail Petrovich, had been started in Glavmosavtotrans. Moreover--he /staunchly/ /in boldface/ does not believe in it. Why--that is a special question, a question, so to speak, of the entire life of Mikhail Petrovich, of his entire position which entails much work, and I will attempt to answer it. But first a few words on the essence of the experiment itself.*

* Twice EKO told about the prehistory, start and continuation of the experiment in Glavmosavtotrans: No 1, 1971; No 4, 1976.

Its basis, its, so to speak, point of rest, which makes it possible to shift the dry layer of economic skepticism and to give free range to initiative, is a stable five-year plan for the entire main administration and its enterprises with firmly established assignments for each year.

The idea of what has been planned is clear: it is one thing when an enterprise receives a plan with a fixed percent of increase from what has been achieved, when this plan is not protected by anything from interference from above or from the side, when it is not known what additional assignments will emerge literally tomorrow. And it is something completely different when, like a precise map, one is faced with both the five-year plan and each year of it, when it is a certainty that the plan has the force of law, and when, as in clear weather, one can see far ahead, to the horizon itself....

Further: the long-term economic standards. They are approved along with the five-year plan and report the progress to the mechanism of business initiative. Above all, it is known precisely, how much of each ruble of profit must be turned over to the budget, and how much is left to the main administration for the financing of capital investments, scientific research work and the economic stimulation of enterprises.

Well, and what if? There are no "ifs"! A reserve fund for assisting enterprises and organizations and for regulating contra accounts with the budget is formed from the profit which remains at the disposal of the main administration. Its amount is up to five percent of the total profit.

Fine, but where are the conditions which would induce enterprises to assume stepped-up assignments, to strive to utilize reserves?

In principle both the stable five-year plan and the long-term economic standards already give free range to economic initiative. However, there is a separate chapter on that score. The main thing in it is the following: it is much more profitable for an enterprise to assume a stepped-up plan and to fulfill it than to conceal the reserves and then to exceed the set assignments. In the former case the economic stimulation funds will be formed in the full amount, in the latter--according to substantially lower standards. The system penetrates even deeper--into the economic interest of those who manage the enterprise, who know better than everyone its potentials and who can either take them into account or hide them. For each percentage of the higher (as against the level specified by the five-year plan) plan on the profit the managers, engineering and technical personnel and employees receive a bonus which exceeds by 6-8 times the one which they would have obtained if the approved plan had been overfulfilled.

Everything, thus, should take its place: the contrivances to conceal reserves depreciate and, on the other hand, the efforts to place the potentials of the enterprise fully at the service of the state increase high in price. Is not this order not to the liking of all of us?

Such in the most general outlines is the new cost accounting system of the relations of enterprises and the main administration, enterprises and the plan, the main goal of which is to increase production efficiency. In essence, the experiment continued the matter which began in 1965, after the September CC CPSU Plenum, which is remembered by all.

"It is useless to apply pressure from above, to force enterprises by a directive to reveal the reserves. Our directors know perfectly well what a dynamic series is! It should be /profitable/ /in boldface/ for them to include the reserves in the plan--only then will this be a step forward," V. P. Pavlova, chief of the administration of finance, prices and rates of Glavmosavtotrans, told me.

She, A. L. Finkel'shteyn, chief of the economic administration, Ya. F. Shatkus, chief of the administration of labor--everyone who was drafting the new regulations of the economic life of the main administration and its 82 enterprises and organizations were faced with a complicated problem. It was necessary to take measurements 7 times 77 times before making the decision which combined the efforts and thoughts of 90,000 people--all the workers of Glavmosavtotrans.

Later I tried repeatedly to elicit from B. P. Pavlova and A. L. Finkel'shteyn, what reason compelled them, as well as I. M. Goberman, chief of Glavmosavtotrans and Hero of Socialist Labor, to take up this matter, how they worked, with whom they argued and what they stood up for.

None of them could answer the direct question: "For what reason?" for it was self-evident that they were economists in order to think and find more effective methods. I can now answer myself: the reason is civil spirit. It appears in different ways in different people, for them it was expressed in an uncompromising attitude toward everything which curbs the development and intensification of economic reform. They perceived the increase of the number of approved and reapproved plan indicators as a personal drama, as a violation of the regulations established by the reform. But their number little by little increased to 28!

Of course, it was possible to wait until something would be changed by someone in the planning and management, and these changes would concern Glavmosavtotrans. Right at that time the Ministry of Instrument Making, Automation Equipment and Control Systems began its experiment, and for sure it was tempting to look aside, as if from an auditorium, at how all this would end, and in case of success to try it yourself.

But they agreed least of all to remain spectators. It is not in their character to wait, hoping that the matter would be done by others. Consultations with scholars began--at the Central Economics and Mathematics Institute, with its director Academician N. P. Fedorenko, there was a meeting with Minister of Instrument Making, Automation Equipment and Control Systems K. P. Rudnev and his coworkers, there was a careful study of the

first steps of the 1965 economic reform. And there was everyday, difficult, intensive work, which continued nearly half a year.

"We dealt with raptures," Pavlova said to me. And, you will agree that these words of a person who deals with the dry prose of finance, prices and rates, once again remind us that both creativity and inspiration are inherent in economics and economists.

They were still faced with a thorny path of agreements, they had to demonstrate that they were right, the soundness of their constructions at the Moscow Soviet, the Ministry of Finance, Gosbank, the AUCCTU.... On one of the conditions of the experiment--to create at the main administration a centralized fund for the payment of bonuses (but not from the above-plan profit, and hence based not on the concealment of reserves in order to provide oneself with a bonus!)--the main administration had a stubborn argument with the Ministry of Finance. But the main administration was backed by the AUCCTU, and Finkel'shteyn was able in one day to obtain the necessary letter, on it all the official signatures and to forward it to the Council of Ministers....

Chief of the economic administration of Glavmosavtotrans A. L. Finkel'shteyn is an aloof, ironic, reserved person. But the temperament of a fighter breaks through the self-control, through his external aloofness. He gave several years of his life to the economic experiment, and therefore there is no matter more important and dear to him.

Every condition of the experiment was weighed and thought over, the advice of scholars and the doubts of colleagues were listened to. Finally, approval was received at all levels, up to the USSR Government. This was very important, because it showed: the correct direction was taken, the economic search of Glavmosavtotrans is necessary to the national economy of the country. The last thing remained: that the system would be accepted by those to whom it was directly addressed--the managers of the motor transport enterprises.

And right here probably the most difficult thing began.

Mikhail Petrovich was not alone, not he alone saw in the experiment "a worm for a crucian" and not only he imagined in the stepped-up plan a trap in which the famous "dynamic series" with planning "from what has been achieved" was hidden for the time being. But, honestly, it is not his fault and the fault of those like him--it is their misfortune. After all, for many years they were accustomed to keep quiet about the actual potentials of their enterprises. He told me, and his words came from a tormented heart: he had hardly become the director, the responsibility for the well-being of many hundreds of people had hardly been imposed on him, he had hardly experienced how they beat unsuccessful managers, when he made himself a firm promise: not to take risks without extreme need, not to make his way among the leaders, but not to lag behind. He is a gentle,

sympathetic person, his subordinates like him. But I remember when the talk here touched on the first years of the economic reform, Mikhail Petrovich at the moment became grim. Then he began to believe, he was among the first, and considered himself the truest supporter of the new system of planning. But with what bitter, what painful bewilderment he then saw that he, the director, was being left with less and less room for initiative, that the fence of instructions and indicators surrounding him was becoming thicker and thicker.

"The hell with them, the indicators, in the end!" he exclaimed with sudden fervor in that conversation of ours. "You especially do not believe our brother. It did not turn out then--and fine. Let us forget it. We are not that bad off. There are funds left, money is coming--honestly, it is possible to live! They are right to thrash us for the plan. It is also necessary to be able to keep us under their thumb," he shook his large, tightly clenched fist above the table. "But after all, they will also help should the opportunity arise, they will help for sure! They see that the plan is failing for you--they will make an adjustment! It is a little easier for us, and it is good for the main administration: we are not ruining the overall picture...."

But Mikhail Petrovich was showing off his indifference in vain. The words of the director below the surface were the words of a wounded man, and therefore, in listening to him, I became more and more convinced of the opposite: he was dreaming of the possibility of managing with initiative, of serving not out of fear, but out of love for his job, wanted to believe in the new experiment, moreover--he clearly recognized its necessity and usefulness. But he could no longer step over himself.... And he moved obstinately against the current which had begun in Glavmosavtotrans.

Judging by Mikhail Petrovich, all the directors also experienced the most tormenting doubts. It is not even the point that it is always more complicated to search and think than to simply execute. I, perhaps, will both take it into my head and find it: I know what to look for and where in my management. And what will the experiment pay me? The managers of the enterprises, each of whom, I am confident, in his time touched a hot iron and experienced something similar to what befell Mikhail Petrovich, pondered in approximately that way.

To accept the conditions of the experiment without reservation meant to admit that there would be no peaceful life. Whereas earlier their wisdom reduced to saying "no" to the plan which approached them from above, now they themselves have to adopted a stepped-up assignment, to provide themselves with more powerful equipment, to reequip the repair base--thousands of worries! That was the very case when psychology came to the forefront in the economy.

The standard of thinking is cultivated by years, if not by decades. Is it any wonder that it is most difficult of all to break it? If for a long time circumstances instill the habit to remain silent, it is not so easy to overcome it, to speak out loud. As if in a besieged fortress, Mikhail

Petrovich held stubbornly to his garage, keening watching here: what is happening around? Meanwhile something was happening around, which caused him the sense of some bewilderment: the overwhelming majority of the directors of Glavmosavtotrans had accepted the experiment, and matters at their enterprises were proceeding successfully. True, like him, another experienced manager, director of the third motor transport combine I. I. Frumin, repeatedly spoke out in the sense that all the starry-eyed idealism of the economic system planned in the main administration one fine day would not withstand the collision with the harsh reality of economic existence. It would not withstand it--and like a house of cards all these stable assignments, standards and other amusements of theoreticians removed from life, which were approved for five years in advance, would fall down. The inflexibility of the plan--this is, you will excuse me, funny! This is not a talk for serious people! Where, in what ministry, at what enterprise was such a thing encountered?...

But soon something happened to the third motor transport combine, which did not please Mikhail Petrovich at all. The combine did not fulfill the annual assignment. Frumin hoped that the plan would be adjusted, but this did not happen. The payments to the budget were made in the full amount; the combine delivered its share in full to the main administration for centralized capital investments and was left with such a meager incentive fund that it was necessary to sharply reduce the bonuses for the engineering and technical personnel and employees.

Misfortune lay in wait for Mikhail Petrovich from another direction.

He reckoned that the more carefully you go, the more accurately you will aim. But, having assumed an artificially low assignment on the profit, and then having overfulfilled it spiritedly, he arrived at approximately the same result as Frumin. Past experience, like a broken compass, directed him in the completely wrong direction. During those days Mikhail Petrovich went around morose, avoided meeting with chief economist Anna Borisovna, and she--she must be given her due--never allowed herself even by a hint to return the director to the former argument between them about the experiment. But at the time he nevertheless received me--I believe, only in order to say obstinately:

"Who is right--we will see yet!"

"Well, Mikhail Petrovich," I answered him, "it is something personal in you.... We must be a little more objective!"

He nodded his large head.

"I would be happy if I turned out wrong!"

I recall, I constantly tried to find out from the directors of the enterprises of Glavmosavtotrans:

"Tell me," I asked, "about your first attitude toward the experiment."

The director of the largest--more than 2,000 vehicles--motor transport combine No 1, G. L. Krauze, responded, I recall, as follows:

"At first I looked on it with considerable apprehension. But then I thought: a decrease of the number of indicators, a stable five-year plan, standards--what could be better? Well, I thought, let us try again...."

Gennadiy Leonidovich Krauze, in my firm conviction, is a remarkable manager. If you need a portrait of a businessman, paint him!

He is short, stout, blue-eyed, with a lively face, with the light step of a person accustomed to sports. His office is roomy, with beautiful furniture, in an eight-story building on Khoroshevskoye shosse, which was built not that long ago according to an independent plan. This building alone told me much about Krauze. Standing at the entrance, I looked at the concrete surfaces, at the windows of nonstandard form in aluminum frames and as if read the poem of this building, which was written on the walls in invisible letters. The key stanza in it could have been just that.

I told Krauze this, he exclaimed:

"Precisely! Everywhere they refused, it was necessary to get through to the chairman of the Moscow Soviet, to convince him. It is a good building, is it not?"

He and I walked about the combine. The repair service was set up here in a special way, it was as if depersonalized: in it a driver does not meet a foreman, there are no complicated relations arising between them. There is no temptation to use at one's own discretion one's own little, but all the same power, but there is an order which the driver turns over to the dispatch office and after which everything proceeds once and for all according to an established order: a command to the warehouse which is equipped, incidentally, with the latest equipment, a search for the part, the repair.... I see: in the battery room it is clean and quiet, a man in overalls is sitting there, reading a book.

"Earlier there was an obstruction here, it was all crammed with batteries!" Krauze said with the satisfaction with which overcome difficulties are usually recalled. "Now there is complete order. He did it all," the director pointed to the man with the book, "it is his work."

It was all in the equipment which reduced by many times the time to charge the batteries.

In the upholstery shop, where the director led me, while muttering: "It is nonsense that women are less inclined to rationalization," I saw specially arranged tables, remodeled sewing machines, the blocks of a magnet, to which

the skilled craftswomen stuck the tacks--there was an idea in everything. Both here and in the other shops this was the main thing: the clearly visible, constant work of the mind, the aspiration to help the cause--be it a trifle, some hand cart, which is not very obvious, but helps splendidly during the repair of vehicles.

Another thing was also noticeable: the desire of the enterprise to help man.

We went to the dining room. The everyday lunch in the common hall was more palatable and plentiful than other restaurant dining rooms and in addition considerably less expensive: 60 kopecks. In the splendid sports hall the volleyball players were at it. Krauze lingered here a little longer, his eyes flashed: he was, I was able to notice, a venturesome and cheerful man. Behind us a group of school children led by a woman teacher stretched to the gallery of the sports hall. The director, smiling, explained:

"A tour. You remember--that lad will come home and say: 'What a place we were at today! The combine is strength! And the sports hall!' And this will be memorable for his father, and the little boy will remember, I tell you."

Like a gardener, he cultivated among all the workers at the first motor transport combine a sense of pride in their enterprise. This extremely moral factor has in his eyes a mighty material force: the turnover of personnel at the combine is 7 percent.

They have two vacation centers: near Moscow at Otradnoye and on the Black Sea at Alushta. For the Moscow vacation center Krauze received two reprimands, for the Crimea vacation center he was almost removed from his job. Even with a major finale all this is quite sad, but--alas!--it is well known: every manager has similar stories to spare.

...In 1946, after going through the war, he turned up in Moscow and out of his boyhood love for horses went to the racecourse to take a job as a jockey. But he did not like the racecourse life and left for the raykom of the party. There his further life was solved very quickly and, as it turned out subsequently, marvellously precisely. He ended the war in a motor transport company, so the raykom sent him as deputy director to a small management. In a year he became the director. He is also a director now, 30 years later. Only his management has grown since that time, like a tall tree grows from a small seed: more than 2,000 vehicles, over 5,000 workers. The management is the best in Glavmosavtotrans and, perhaps, in the entire country.

Thirty years is already history. In it the director has a favorite time--1965. Then, as if having received additional acceleration, the combine rushed ahead: the profit and the output per vehicle increased, the downtimes were reduced by nearly a half, the treasury began to receive more money from the enterprise.... The time of the flight of economic initiative,

the time of fruitful work and thought--Krauze remembers it like his lime-light.

But in two years it had already become noticeably more difficult: instead of one planning indicator--the profit--nine appeared; the habit of planning from what had been achieved raised its head.... Unclear prospects were opening ahead, and Krauze understood that it would not be out of place to take out some insurance. He decided to succeed through volumes and linked up with his combine another 10 affiliates. Now it had 16 in all. It was inconceivably difficult to manage such a business without an ASU [auto-mated control system], he turned for help to scholars, they responded willingly--and since that time a laboratory of the academic Central Economics and Mathematics Institute has been simply working for the first motor transport combine. Krauze comparatively easily survived the years when others groaned under the weight of the suddenly revived "dynamic series." But what he, who recognized the blinding potentials of resourceful management and was forced again to restrain himself, to slow down and to be cunning, thought about and went through--my conversation with him was not on this, I do not want to conjecture, but I know: he did not get by without bitter and regrettable bewilderment.

Now, many years after the economic reform, in the begun experiment he recognized well-known traits: the same independence granted to the enterprise, which is limited to only four indicators that the main administration establishes. And again thought, initiative and calculation were needed. All this was close to Krauze, everything coincided with his notions. And, having recalled the recent past and hesitated, he again decided "to try."

His doubts are understandable. But there were directors who without hesitation accepted the conditions of the experiment, in spite of the difficulties which it had prepared for them.

There is L. S. Reznitskiy, the director of motor transport combine No 29. A war behind him, more than 30 years of work at the motor transport combine. He accepted the fourth center 13 years ago. The business was unprofitable. The next year it yielded a profit of 60,000 rubles. In 1974 affiliates were added to the center, the motor transport combine was born: about 1,000 vehicles, a profit of more than 3 million rubles in the final year of the last five-year plan. Reznitskiy does not employ experience, economic life has taught him enough lessons of doubt, but, nevertheless, he immediately accepted the experiment. My God, how I understand him! Instead of the need to prove the impracticability of the plan assignment, instead of reticence and suppression to receive a clear and fixed five-year plan, free range for initiative; he, of course, took heart.

Reznitskiy related:

"It is not a matter of how much we hauled, but of how we did this. At what price--that is the essence. There are, of course, many worries. Before I

looked: the tons are there--fine. Now the products list is above all important to me: did I supply everyone, did I haul all the freight. It is necessary to think, it is necessary to earn a profit, to fulfill the obligations to the state, well, and to forget about oneself...."

For example, in 1975 the motor transport combine was given as a five-year plan: to haul 11.26 million tons in a specific products list, to obtain a revenue of 10.83 million rubles and a profit of 3.01 million rubles. It was more profitable in all respects to adopt a plan higher than this one, to add tension to it. And so an analysis of the potentials and a search for reserves begin.

The first question to the operating service is: what are your proposals? Service chief A. Ya. Dneprov answers:

"We will increase the use of capacity of the run by three-tenths of a percent."

"But what do you support this decision with?"

"We are reequipping the inspection channel, we are increasing the shipments in packets and on pallets, we plan to decrease by one percent the downtimes during loading and unloading...."

And thus each service of the combine reveals its reserves. As a result the management came to the conclusion: there is the possibility and it makes sense to incorporate in the plan higher indicators: to haul 12.09 million tons, to obtain a revenue of 11.047 million rubles and a profit of 3.124 million rubles. The estimate was made quite strictly and conformed to the real potentials of the motor transport combine. A system of economic incentives supported it. A. D. Shlykova, chief of the planning division, said to me:

"The system of stimulation has been developed so that the more tension we put into the plan, the greater the bonuses will be."

Take, for example, a driver who hauls concrete: if his output in terms of kilometer trips reaches 15 trips a day, this means he can count on a bonus in the amount of 30 percent of the piece-rate wage. Repair workers are paid bonuses depending on the "output": the fewer vehicles that are idle at 10 o'clock in the morning, the greater the economic incentive. The engineering and technical personnel, the operating service, for example, are paid bonuses for the increase of the revenue and the increase of the use of capacity of the motor vehicles. These are additional conditions. But the main ones of all of them are the fulfillment of the plan on the profit and the products list. Moreover--I stress--each percent of "tension" incorporated in the plan makes the bonus greater.

The stepped-up plan, which was adopted in 1975, was fulfilled. After settlements with the budget and the payment of contributions to the centralized funds of the main administration, after the contribution of money for the salary of the staff of the administration, the motor transport combine transferred to its funds 540,000 rubles. The funds of the enterprise depend directly on the size of the profit--that is one of the peculiarities of the economic experiment of Glavmosavtotrans.

More than 300,000 rubles went to the economic incentive fund. Each worker of the enterprise received about 200 rubles from this fund--63 rubles more than in 1970; 138,000 rubles went to the fund for sociocultural measures and housing construction and 62,000 went to the production development fund (nearly twice as much as before the conversion to the new system). Well, of course, travel authorizations were obtained, a club and a dining room were built, not less than 6,000 rubles were spent on a supplementary payment for food to repairmen who worked during the night shift. They built purification structures, a flow line of vehicle maintenance, they equipped the shops with ventilation. They would have done even more, if it had been possible to completely "back with goods" the earned money.

Do not think that I have specially selected the best enterprise of Glavmosavtotrans. Moreover, the 29th motor transport combine was not able to completely feel the results of the economic experiment, since the neglected management of the affiliates attached to it lay like a heavy burden on its indicators, on its financial situation. At other enterprises it would have certainly been possible to obtain clearer figures. But it is, of course, not a matter of this. The experiment sprinkled the entire economy of Glavmosavtotrans as if with the water of life--that is the main thing. The results of the past five-year plan are themselves confirmation. In addition to the plan the enterprises of the main administration hauled in excess of 20 million tons of freight, obtained a revenue of 75 million rubles. The increase of labor productivity in 1975 was 11 percent higher than the planned increase in the five-year plan for the concluding year of the five-year plan. The number of workers was, moreover, lower than the planned number.

People who remember 1965 well--and there are many of them at the main administration--told me that a turn of the wheel of time had as if taken place and work was expanded with the same passion, with the same excitement, with the same initiative. Glavmosavtotrans received more than 37 million rubles of profit from 1972 through 1975 only from the stepping up of the plans, from the reserves which at that time it made no sense to conceal.

But now let us raise the question as follows: what would happen with the 29th combine if it could not settle with the budget, an overexpenditure of the wages occurred, if it did not have an economic incentive fund large enough to pay bonuses? Earlier, before the experiment, the bank could help with the wages a little, even without going into: is the enterprise guilty; is it true, it would be necessary to pay with interest. And now?

I did not find appropriate examples at the combine of L. S. Reznitskiy, but at his neighbor's, motor transport combine No 23, there was something similar: during the first quarter they overspent 14,000 rubles on wages. Were they managing well? No: not through their own fault did they begin to haul less cement, then the shipments with a higher standard of expenditures per ruble of revenue increased. The evidence of director B. V. Yegiazarov at the main administration were recognized as convincing, and outright assistance was given to the combine from the centralized reserve.

However, God forbid that you think that assistance is always outright and that the main administration, like a sister of mercy, equally sympathizes with everyone.

The first garage of Mosstroytrans /Administration for Centralized Transportation of Construction Freight of Glavmosavtotrans/ asked for only a few thousand: to pay the annual reward to the workers (it did not have a large enough economic incentive fund of its own). Chief of the administration of finance, prices and rates of the main administration, V. P. Pavlova, answered harshly: not a kopeck! It is necessary to worry about the fund, to create a reserve, and not to spend more than you have earned. Such a lesson was taught to the managers of the center.

Well--is it time to insert the last period? Is it time for my collocutors to say good-bye to Mikhail Petrovich and to leave him in a state of agonizing anticipation? His apprehensions did not come true. The past five-year plan should change his mind, should instill confidence and rescue him from anxiety. But he, like a man in a mine field, is still waiting: at which step will he be blown up? At this one? The next?...

I could conclude the article with an accusatory word addressed to him, having added something about the unsolved questions connected with the purely economic aspects of the experiment. However, specialists will speak about this in more detail and better. I would also note that the system elaborated at Glavmosavtotrans with the participation of scholars is being disseminated, is already at the basis of the activity of the ministries of motor transport of Belorussia, Kazakhstan and Latvia, and this once more confirms that it is very necessary to our economy. There are difficulties in its dissemination--well, forget them, they are not what worries me now, they are not what forces me to recall Mikhail Petrovich.

The purity and integrity of the experiment--that is the subject of my thoughts.

In its time there was a conference at Glavmosavtotrans, scholars took part in it, and Academician T. S. Khachaturov said approximately the following:

"Every chemistry or physics experiment should be backed by the strictest conditions. Everyone agrees, everyone understands: it is impossible otherwise, the experiment should be pure. But why is this apparently not obligatory for an economic experiment?"

In 1977 motor transport combine No 1 received in the plan--it did not assume it itself--a 17-percent increase of the profit from the level of last year; motor transport combine No 23--16 percent; motor transport combine No 29--15 percent....

"We will fail," G. L. Krauze muttered, looking clearly at me. And, waving his hand, added:

"It is nothing.... They will make an adjustment!"

But allow me! But what about the experiment? Or did Mikhail Petrovich have second sight?

It is necessary to say some unpleasant things. The basis, the point of rest of the system of planning, economic stimulation and management, which was developed at Glavmosavtotrans, is a stable five-year plan with precisely defined assignments by years. In it is the beginning of beginnings, the guarantee of the successful development of the experiment. With great bitterness I make the final announcement: Glavmosavtotrans does not have such a plan for the current five-year plan. The assignments for both the main administration and the enterprises are being established according to the old principle--from what was achieved last year. And the directors--those who like Reznitskiy believed immediately--are cursing themselves for frivolity, who hesitated, but all the same believed--are giving themselves their inviolable word that this is the last time, while those who did not accept the new system with their soul--can be proud of their far-sightedness.

Of course, the matter is not being stopped, it will be developed: not at Glavmosavtotrans, not in Moscow, but in Belorussia, Kazakhstan and, finally, in Latvia, where the experiment is ceasing to be an experiment, and is becoming a norm of economic life. But I ask: why? You recall how the idea of the experiment arose, how its conditions were developed: everything was discussed, everything was coordinated gradually, until it had risen to the highest instance--the government of the country!--and received final approval there. Yes, there were arguments, supporters were found, opponents appeared--but where, when it was painless, did the new thing enter life to an ovation?

Here from the very start a reasonable, sober, attentive approach was displayed, all the legal, economic and moral norms were observed and as a result a document was drafted. It is called "Methodological Instructions on the Further Improvement of Planning, Economic Stimulation and Management at Glavmosavtotrans of the Moscow Gorispolkom." This document was approved by an interdepartmental commission attached to USSR Gosplan and in it on page two there is written in black and white: "The five-year plan (with distribution of the assignments by years), which is approved by the Moscow Gorispolkom, is the basis of the planning of the production operations of Glavmosavtotrans."

I admit: several years passed and gradually it was revealed: you and I made a mistake, dear comrades! Comrade Goberman and his coworkers confused us, they became confused themselves--the experiment is not working! So what, it happens. Then in the same interdepartmental commission under the leadership of Deputy Chairman of USSR Gosplan A. V. Bachurin a representative conference should probably be held, which will discuss and make the appropriate decision: to halt the experiment at Glavmosavtotrans. Or to improve it in some direction. I am not raising my voice for extra paper, I am for there not being arbitrariness.

But you know: Glavmosavtotrans finished the last five-year plan more than successfully, and this is no reason to stop the experiment.

However, another reason could be found: the circumstances have changed. Where, what ones--we will not go into the details now: they have changed, and this is all! And it has become impossible for the experiment to exist. So what, perhaps this is so. But, once again, it must be said officially, quite publicly and convincingly: now other, more important problems are on the agenda, the experiment is in no way helping to solve them, it should be shelved. In other words: they adopted it responsibly--they also halted it responsibly.

Meanwhile, it is clear to everyone interested in problems of the current economy: the national economy of the country needs the experiment of Glavmosavtotrans, for it is giving an answer to many, very important questions.

This reason, probably, is also losing its validity.

I am not in a position to continue anything now. It remains to recall a case from life, which, perhaps, will explain something.

When the experiment began, it was necessary to approve the five-year plan with assignments by years. This "stable" five-year plan squeaked through the Moscow Soviet, but in the end was approved.

But at the time some perspicacious people expressed the idea that the comrades from the Moscow Soviet hardly realized precisely what obligations they had signed for the main administration. And to be precise: at the end of the first year of the experiment an attempt at interference from above followed: "Fine fellows, you have worked well, here is an increase from what has been achieved for you!" "Impossible," the main administration responded to this. There was no limit to the amazement. How is that: it was always possible, but now it is suddenly impossible? And so: there are government decrees, there are the methodological instructions of the interdepartmental commission attached to USSR Gosplan, which were adopted on its basis. Do not touch!--an experiment....

Possibly this episode explains why today the point of rest at Glavmosavtotrans has been knocked out.

At the Moscow Soviet I heard: "It is not good for Mosavtotrans to object to the additional assignments. The situation in the municipal services is tense, that is the main thing! Well, and everything else is later. Moreover: they have a five-year plan, God knows what will they weave from? There are control figures--are they really discontented?"

If you do not see the difference between control--approximate!--figures and a stable five-year plan with precise assignments by years, then, of course, it might be thought that on Shipka all is quiet and Glavmosavtotrans has nothing to be distressed about. Then the document is not obligatory and the matter is reasonable.

But at Gosplan they know for sure that the wheels of the experiment are skidding, moreover--they are going backwards as if along a slope washed by rain....

"Yes," I hear in response, "we know that they do not have a five-year plan."

They know and understand--fine! Is it likely that they are filled with the desire to defend their decision?

There was a pause in the conversation, after which followed an answer and immediately after it a request:

"No. They have not taken measures.... Only do not mention my name!"

For God's sake--if this will lighten for you the moral and official responsibility, your name, dear comrade, will not be mentioned. But let there remain with you the realization that you were obligated to interfere--and did not interfere, that you could have helped--and did not help.

Even the scholar, who stood by the cradle of the experiment, who helped it to take the first steps, a man with a name and authority, whose weighty word undoubtedly would have played its role--he also walked away. I told him about the situation at Glavmosavtotrans, he leaped up:

"On no account can it be allowed! It is necessary to go further!"

And he added with genuine grief:

"It is my oversight."

...As if according to the verdict of the court, I went to Mikhail Petrovich. He alone was more far-sighted than us all, and I have to tell him this. And what is preventing him, looking at me with a slight squint, from uttering weightily: "I knew, after all. And I told everyone how it would turn out...."

I went into his office and on the threshold said:

"Well, Mikhail Petrovich, you have the upper hand! You were right."

He sat at the desk, propping up his large gray head with both hands. He looked bad, and I thought that, probably, I was starting the conversation about the experiment at the wrong time. But there was no conversation. Mikhail Petrovich responded as follows:

"We all are now wrong...."

And in that short reply there were regret for his indecisiveness, condemnation of economic arbitrariness and bitter bewilderment: why retreat from the achieved successes, from the agonizingly found solutions, from the hopes? Why?....

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IMPACT OF SCIENTIFIC RESEARCH, EXPERIMENTAL DESIGN

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/Article by Candidate of Economic Sciences V. Pokrovskiy, senior lecturer:
"Evaluation of the Impact of Scientific Research and Experimental Design
Developments"/

/Text/ The need for the intensive study of the economic efficiency of scientific research and experimental design work (NIOKR) has increased considerably under present conditions. And this has affected the number and size of the publications devoted to this question. The analysis of the available material permitted us to perform some work on its systematization and to elaborate the following definition: */the impact of research and development is the set of scientific, technical, economic and other results which have been expressed in a form which allows their practical utilization/* /in italics/. The comparison of the impact with the expenditures on its achievement characterizes the efficiency of NIOKR.

When examining the question of the criterion of the economic efficiency of NIOKR, it is necessary to take into account that it expresses only a part of the economic impact of socialist production. The economic results of NIOKR are revealed only in the system "science--production." As is known, the national economic efficiency is the result of all national labor, including labor in the area of science. In this sense there cannot be a special nature of the economic impact of research or development (and what is more, of their individual types), of new technology, capital investments and so on.

The duality of concrete labor in the sphere of science stems from the fact that it performs two socio-economic functions: a gnoseological (cognitive) function, as a result of which there appear nonphysical, but specially fixed (for example, in the form of theories, predictions, a file or archive of reports and publications) results of NIOKR; an applicational function, that is, a function which transforms scientific knowledge in connection with the emergence of new needs into a motive force of the development of production and society, when the materialized results of NIOKR appear in the form of sketches, mock-ups, prototypes, experimental plants and in the end new technology.

As the result of the performance by science of gnoseological functions scientific information arises as a means of the primary materialization of ideas. Science can perform an applicational function only through new technology, for the potential economic impact incorporated in research or development is derived not immediately, but progressively and gradually, through a system of modifications and technical decisions. An economic impact cannot be obtained without the creation of a new technology, in connection with which it should be considered the concluding stage of NIOKR of a scientific and technical profile. Precisely for this reason the expenditures on NIOKR in the sense of one-time-ness and remoteness from the moment of receipt of the impact are analogous to capital investments, although the latter are localized in the object and are subject to wear.

The dialectics of the process "science--production" consists in the fact that, on the one hand, the efficiency of research is determined by the efficiency of experimental design operations (OKR), series production and exploitation and, on the other, on the contrary, the efficiency of research determines the efficiency of OKR, series production and exploitation.

A characteristic of science as universal labor is its dual effectiveness. Hence two approaches to the evaluation of scientific activity: according to the result itself and according to the effectiveness of its applications. This serves as the basis of the interpretation of the impact of NIOKR as a generic concept, when the sociopolitical, scientific, technical and economic types of the impact of NIOKR are distinguished. These types of impacts are in a specific interrelationship. The complex nature of the impact of NIOKR is expressed in the fact that its sociopolitical, scientific, technical and economic types are diverse and complex. Each of them, in turn, is broken down into a number of more specific impacts.

The sociopolitical impact¹ is manifested in the improvement of working conditions, the development of public health, culture, science and education, the strengthening of the defense capability and the increase of the prestige of the country on the world scene, the improvement of ecological conditions and so on.

So far the sociopolitical impact, if it has been evaluated, has been evaluated primarily qualitatively, which, of course, is of definite importance. In principle there can be an estimated measurement, or a heuristic evaluation of the sociopolitical results of research and development directly through factors which govern their achievement. The determination of the sociopolitical impact of NIOKR should be accomplished on the basis of a long-term prediction. It is of special importance for basic research, since the scale of its sociopolitical impact is considerably greater than applied

1. In connection with the difficulties of the separation of the social aspect of the efficiency of NIOKR from the political aspect, since politics is always social, while social measures always have political grounds and direction, it seems feasible to use the term "sociopolitical impact."

research and development. It is necessary to predict as accurately as possible the sociopolitical consequences of basic research so as to organize most efficiently the use of its results. The parameters obtained in the process of forecasting can be regarded as a kind of given (normative, standard) parameters.

It is expedient to use the normative method of evaluating the sociopolitical impact with respect to NIOKR in which the standards act as restrictions when solving technical and economic problems. Among the social standards, for example, are the standard complexes which are established by the corresponding legal acts: physicobiological parameters of the ecological living conditions of the population, comfort at a works and so on. If an improvement of the parameters stipulated by the given standard is achieved as a result of NIOKR, there is indicated at the same time the amount of additional expenditures which are necessary to ensure the new standard. The amount of the permissible expenditures on the improvement of the parameters of social standards is determined by sectorial standards, which it is necessary to elaborate. Until such an elaboration the decision can be made by the organ which includes NIOKR in the plan.

If research or development has as one of its results the increase of the amount of free time, the evaluation of the sociopolitical impact is made on the basis of the conventional valuation of one hour of this time.

The establishment of the growth rate of labor productivity and on this basis the estimate of the increase of the indicators of the economic impact (the national income, the additional profit and so on) are a general methodological approach to the determination of the impact of the social measures which increase the productivity of living labor (which save labor resources).

The scientific and technical impact, which reflects the increase of the information that is intended for consumption within science, as well as the possibility of using the results of the research being performed in other NIOKR, can be called endogenous. The impossibility of reducing the indicators of the scientific and technical impact of NIOKR to one indicator or of singling out within them the main indicator indicates the expedience of using when determining this type of impact a point evaluation, which makes it possible to use any number of attributes and indicators.

The coefficients of importance, which are established during an expert evaluation, as if perform the function of "standards" ("prices"), stimulating the determined directions of the increase in this case of the scientific and technical efficiency. In this case the indicator of the scientific and technical efficiency of NIOKR-- $K_{HT.9}$ --should be determined by the formula

$$K_{HT.9} = \frac{\sum_{j=1}^n \gamma_j^* \bar{B}_{jk}}{\sum_{j=1}^n \gamma_j^* B_{jk \max}}, \quad \begin{matrix} j = 1, 2, \dots, n, \\ k = 1, 2, \dots, l, \end{matrix}$$

where γ_j is the standardized value of the weighting coefficient of the importance of the j-th attribute; \bar{B}_{jk} is the mean value of the point conferred by experts on the k-th quality of the j-th attribute; $B_{jk_{\max}}$ is the maximum possible value of the point; l is the number of qualities which characterize the j-th attribute; n is the number of attributes being used.

It is very important to stress the relative (indicative) nature of this indicator, which to a considerable extent eliminates the objections of the opponents of the point evaluation.

The standard values of the weighting coefficients of the importance of attributes, which are cited in Table 1, were established on the basis of an expert survey.²

Table 1

Attributes	Standard value of the weighting coefficient of the attribute
Scientific and technical level.	0.3
Promise	0.4
Possible scope of introduction.	0.2
Degree of probability of success.	0.1
	<hr/> 1.0

Each j-th attribute has some set (k) of qualities-- B_{jk} . On the basis of a number of expert surveys, each of which for the purpose of ensuring a high consistency of the opinions of the experts was made in several rounds, there were obtained average and rounded values of the point evaluations of each k-th quality of each j-th attribute. The evaluation was made on a 10-point scale. The data on the attributes and qualities are cited in Table 2.

Two methods can be used in the point evaluation of the qualities and attributes of NIOKR. With the designation of the point evaluations by one expert or with very precise characterizations of the qualities a point is conferred on the latter (see Table 2). In other cases for each quality the average value of the point can be determined. Here the expert can assign any value of the point, which lies in the interval from 0 to 10. Thus, by having all the necessary data, for the maximum value of the efficiency of NIOKR-- $K_{HT.3}$ --it is possible to choose the most promising research and development from the scientific and technical point of view.

2. The expert survey of well-known specialists was organized by the Scientific Council for the Problem of the Organization and Economics of Scientific and Technical Research and Development of the State Committee for Science and Technology.

Table 2

Attribute	Qualities of attribute	Characterization	Bjk
Scientific and technical level of proposed or achieved results	Exceeds world achievements	Obtaining of fundamentally new results unknown to science. Development of new theories. Discovery of laws. Creation of fundamentally new devices, substances, methods	10
	Is on the level of world achievements	Establishment of new general laws. Development of new devices, substances, methods, algorithms. Fundamental improvements	7
	Approaches world achievements	Favorable solution of raised problems on the basis of simple generalizations. Analysis of ties between cases. Extension of known principles to new objects. Reproduction of devices, units	5
	Trivial	Description of individual elementary cases. Abstracts. Conveyance and dissemination of know-how	1
Promise	Paramount importance	Are of importance for the progress of the entire sphere of science in all countries. Ensure proportionality of the development of science in a country	10
	Important	Will promote the increase of social productivity of labor. Will meet newly arisen needs	7
	Useful	Can later promote an increase of labor productivity	3

/Table continued on following page/

Table 2

Attribute	Qualities of attribute	Characterization	B _{jk}
Possible scale of introduction	National economic	Can be used in a number of sectors of the national economy. Are of importance for the development of allied sciences	10
	Sectorial	Can be used only on the scale of one sector	4
	Intra-institutional	Can be used only on the scale of a specific organization	1
Degree of probability of success	High	Success is very possible. There are precedents	10
	Moderate	Proposals are technically feasible	6
	Low	Theoretically feasible. Risky idea	3

At times when formulating the thematic plans of specific scientific institutions or their subdivisions it is expedient to take into account the conformity of NIOKR to the specialization of the scientific subdivision (complete; to a considerable extent complete; insufficiently complete; does not conform), as well as the restrictions on resources (no restrictions; negligible restrictions; substantial, very substantial).

When evaluating the scientific and technical efficiency of NIOKR after its completion it is necessary to take into account the obtained licenses, patents, certificates for inventions, authorship certificates, applications for inventions, rationalization proposals, as well as publications and consultations for the workers of other organizations.

The economic impact of NIOKR, which is manifested during the use of the results of the performed research and development, during the implementation of a scientific and technical idea can be called exogenous. If these results are not introduced, there is not economic impact. What has been said makes it possible to determine the total economic impact for the national economy (\mathfrak{E}) for the entire life cycle of the new technology, which is the result of scientific and technical research and development, by the formula

$$\mathfrak{E} = \mathfrak{E}_{\text{ни.ок.р}} + \mathfrak{E}_{\text{с.п.}} + \mathfrak{E}_{\text{э.к.с.}}$$

where $\mathfrak{E}_{\text{ни.ок.р}}$ is the impact of the sphere of NIOKR (the economy of labor, assets and time at the subsequent stages of NIOKR, which is achieved owing to the use of the latest theoretical principles, methodological developments, standards, to the improvement of the organization of the performance of NIOKR, to its provision with scientific instruments and equipment, to modeling and so on); $\mathfrak{E}_{\text{с.п.}}$ is the impact in the sphere of production, which is obtained as a result of the updating of equipment and technology by means of the reduction of the production cost and the increase of the profit; $\mathfrak{E}_{\text{э.к.с.}}$ is the impact of the consumer (exploiter), which is obtained as a result of the appearance of new qualitative and quantitative characteristics of the product in which there is embodied the result of the NIOKR in question, the decrease of the expenditures per unit of productivity (work) of the new technology. The national economic, or total economic impact is determined initially for each sphere, and then for the aggregate of these spheres for the period of utilization of the results of NIOKR.

The very complicated problem of determining the amount of use of the product and the term of use arises when calculating the economic impact in the sphere of the production and operation of an improved product. The point is that a scattering of the impact among many consumers almost always takes place.

It is most expedient to reduce the problems of evaluating the economic efficiency of the results of NIOKR to a single-criterion statement with the introduction of disciplining conditions in necessary cases. In such a statement of the problem the absolute value of the economic impact, which

affects the revenues of the state budget, the amount of the profit and so on, is correlated with the expenditures which caused this impact. Taking into account that the main problem of scientific and technical progress is the maximization of the impact for each ruble of expended resources, the monocriterion of the economic efficiency ($K_{\text{э.э}}$) in the most general form can be written as follows:

$$K_{\text{э.э}} = \frac{\partial \Sigma}{\partial Z_{\Sigma}} \pm (1 - k_p) \frac{\partial \Sigma}{\partial Z_{\Sigma}} = \frac{\partial \Sigma}{\partial Z_{\Sigma}} [1 \pm (1 - k_p)],$$

where $\partial \Sigma = \partial_{\text{НИ.ОК.Р}}(1 + E_H) + \partial_{\text{С.П}}(1 + E_H) + \partial_{\text{Э.К.С}}$; Z_{Σ} is the total (complete) expenditures for the entire cycle "research--production--consumption," which are expressed in the following form:

$$Z_{\Sigma} = Z_{\text{НИ.ОК.Р}}(1 + E_H)^{\tau_1} + Z_{\text{С.П}}(1 + E_H)^{\tau_2} + Z_{\text{Э.К.С}} + E_T Z_{\text{Т.П}} + E_{\text{Д.П}},$$

where $Z_{\text{НИ.ОК.Р}}$, $Z_{\text{С.П}}$, $Z_{\text{Э.К.С}}$ are correspondingly the expenditures in the sphere of NIOKR, production and exploitation; E_H is the coefficient of adjustment, which is introduced for the purpose of taking into account the factor of time and is numerically equal to the standard coefficient of efficiency; τ_1 is the period from the performance of the NIOKR to the accounting period, as which the period of exploitation is taken; τ_2 is the period from the series production of the items to the accounting period; k_p is the coefficient of risk, which takes into account the probability of obtaining the predicted value of the impact; E_T is the standard coefficient of the evaluation of labor resources (according to our calculations $E_T = 0.14$); $Z_{\text{Т.П}}$ is the expenditures on the pay of those engaged in the cycle "research--production--consumption"; $E_{\text{Д.П}}$ is the differential rent which is calculated as the adjusted impact from the use of the best and average natural resources (it is introduced only if necessary).

If $(K_{\text{э.э}} - 1) > 0.15$, the use of the results of NIOKR is economically efficient.

When determining the efficiency of research and development, like the efficiency of social production, there arise a number of problems which are connected with the nonuniformity and asynchronism, that is, the time differences of the expenditures and the impact; with the different physical structure of the components, which is manifested in the different scale of the expenditures being made; with the different amounts of the utilization of the results of research and development. The shortage of manpower and the limitation of natural resources can also distort the ultimate evaluation of the efficiency of research and development. All this gives rise to the need to reduce the different scale to a single indicator of the expenditures being made and the impact being obtained and requires the consideration of the time factor, the reduction of the variants to an identity according to the amount of utilization of the results of NIOKR and the consideration of the shortage of labor and natural resources.

Let us examine the methods by which this problem is solved when determining the economic efficiency of NIOKR.

The introduction of a single scale of the expenditures being made and the economic impact being obtained involves the calculation of the standard coefficient of economic efficiency (E_H). Without dwelling on a discussion of the content of E_H , we will regard the latter as the social criterion of the minimum level of efficiency when selecting the variants of NIOKR and new technology. The value of E_H in this case should be such that there would be ensured the receipt of an additional profit in amounts sufficient for the making of the payment for assets and the repayment of credit, the formation of internal assets for capital investments, the financing of NIOKR, the increase of internal working capital and other expenditures, as well as the making of fixed payments.

The acceleration of the rate of scientific and technical progress, as well as a reduction of the proportion of the assets being allocated for the accumulation fund, increase the demand for capital investments and, other things being equal, require an increase of the value of E_H . The Standard Method (Main Principles) of the Determination of the Economic Efficiency of the Use of New Technology in the National Economy (1977) set the value of E_H in the amount of 0.15. If in some cases with allowance for socio-political, defence, ecological and other problems the value of the coefficient of efficiency is less than 0.15, the decision on the expediency of the development of the corresponding NIOKR or new technology can be made by the ministry (department) upon the approval of USSR Gosplan and the State Committee for Science and Technology. Here the amount of the expenditures should be carefully substantiated, and the hypothetical estimated harm, that is, the "deficient economic impact," should also be established.

The time factor is now assuming greater and greater importance, for the high rate of scientific and technical progress is decreasing the period during which the new technology created or being created on the basis of the results of NIOKR is capable of retaining a great efficiency during its use. The problems of the acceleration of the creation and introduction of new technology under the conditions of socialist production, in our opinion, attest to the legitimacy of increasing the standard of the adjustment of expenditures made at different times. Taking this into account, it seems expedient to establish the value of the coefficient of adjustment at the level of the standard coefficient of efficiency (0.15), having maintained identical indices for the designation of these coefficients. For simplification it is necessary to carry out the adjustment according to the time factor of the impact and expenditures not for each year, but with respect to the centers of their distribution. With the presence in $Z_{\text{НИ.ОК.Р}}$, $Z_{\text{С.П.}}$, $Z_{\text{Э.К.С}}$ of capital investments and current expenditures, their adjustment is carried out independently.

It is possible to reduce the current expenditures when making a comparison to any moment of time, if only it is the same for all the current (annual)

expenditures. In order to compare the current expenditures with capital expenditures it is most expedient to reduce all the expenditures to the moment of the start of operation of the new equipment, which appeared as a result of NIOKR.

The reduction of the variants to an identity according to the amount of utilization of the results of NIOKR is usually accomplished by a direct means which is specific for each situation.

The consideration of the shortage of labor and natural resources is connected with the need to objectively evaluate the existing differences as these resources. In the sphere of science highly skilled personnel are used, so the question of the evaluation of the shortage of labor resources in this sphere, especially under the conditions of free education, is of great importance. We share the opinion already expressed in the literature that it would be feasible to approve under our conditions the experience of some countries (the CSSR, Hungary) in the introduction of a fee for labor resources.

In those instances when the results of NIOKR have a substantial influence on natural resources from the point of view of the possibility of their use or conservation, it is necessary to introduce an economic evaluation of the shortage of natural resources. Here there must be taken into account the dynamic nature of the concept the "limitation" of resources, since with an extension of knowledge and the development of technology the resources, which were previously unsuitable for development, are being committed to economic circulation. It is most efficient to make the evaluation of these resources according to the principle of differential rent, when the initial evaluation of the "worst" but currently socially necessary portion (or amount) of a similar resource according to the current expenditures on its development (or replacement) is uniform for all types of natural resources.

When estimating the economic efficiency in connection with the probable nature of the impact of NIOKR, in order to obtain a more reliable value of $K_{9.9}$ there is introduced into the formula the coefficient of risk k_p (the variable of risk), which takes into account the probability of the receipt of the entire impact from the results of NIOKR.

The attempt to determine the standard values of k_p for different types of NIOKR was not crowned with success in connection with the sharp differences of opinion of the experts. For example, for basic and applied research there were given in fact identical intervals of the change of the coefficient with a spread from 0.01 to 0.95, while for development the spread was from 0.1 to 1.0. This attests to the fact that it is expedient to establish the coefficient k_p individually in each specific case: it either is established by experts or is introduced on the basis of the statistical analysis of correlations according to already performed and introduced research and development between the anticipated and actual economic impact or between the economic potential and the actual economic impact.

The uncertainty of the realization of the impact of NIOKR is the cause of the distinction of two forms of this impact--the potential and the actual impact. These forms are applicable to any type of impact of NIOKR, but are of greatest importance with respect to the economic impact, which plays a decisive role in the final phase of the use of the results of NIOKR. Indeed, research and development are used in the creation of the end economic impact only when the result of the labor of the sphere of NIOKR, after passing a number of stages, reaches industrial production and use.

In recent years the terms "potential economic impact" and "actual economic impact" as applied to the use of the results of NIOKR have become widespread both in theoretical work and in practice. Moreover, the impact which is determined on the basis of the actual technical and economic indicators of the new technology, with the use of the anticipated data on the service life and the actual (sometimes also anticipated) amounts of the introduction of the new technology, is considered the "actual" impact. This attests to the conditionality of the concept "actual economic impact." In our opinion, it would be feasible to delimit the maximum anticipated and planned, as well as the estimated actual and strictly actual economic impact. The maximum anticipated impact, apparently, should be established on the basis of the predicted parameters of the new technology and the possible amount of its use in the future with allowance for all spheres of application. The planned impact should be determined on the basis of the planned parameters of the new technology and the planned volume of its output. It is feasible to consider as the estimated actual impact the impact which is determined by using the actual parameters of the new technology created on the basis of the NIOKR, the actual (in some cases, the planned) amounts of its introduction and the service lives. It is possible to consider as the strictly actual impact the economic impact which is established according to the accounting operations, bookkeeping or other official documentation, which reflects the revenues of the enterprises and organizations that are using the new technology created as a result of NIOKR.

In practice now along with the potential impact there is also determined the estimated actual impact. Moreover, its estimates are made only for a portion of the completed NIOKR. For example, a survey of 19 scientific research institutes of different sectors of the national economy showed that the estimate of this impact was made in only slightly more than 30 percent of the cases. Here the study of the correlations of the planned and estimated actual impacts for more than 100 scientific research and experimental design jobs performed at these scientific research institutes made it possible to obtain the following data (Table 3). The analysis of precisely these correlations can make it possible to find the values of the coefficients of the risk.

The proper consideration of the factor of uncertainty creates fundamentally new opportunities for the control of the efficiency of research and development, which makes it possible in time, while the bulk of the expenditures have not yet been made, to make a decision on the halting of the further performance of NIOKR, if the impossibility of considerably reducing the

uncertainty of the end result of NIOKR was revealed while performing the initial stages of research and development.

Table 3

Ratio of the estimated actual impact to the planned impact	0-0.3	0.4-0.6	0.7-0.9	0.9-1.0	1.01-1.2	1.3-1.5	1.6-1.9	Over 2.0
Distribution of the number of scientific research and experimental design jobs, units	25	12	26	32	9	6	2	1

In order to take into account the strictly actual impact it is necessary to adhere to three conditions: to have an idea of the objects and sources of their emergence; to create a system of information, which ensures the necessary completeness of the obtained data on the impact; to shift to the planning of the economic results of NIOKR.

While understanding the exceptional complexity of the organization of the accounting of the actual economic impact, let us express some fundamental considerations on this problem. Above all the calculation of the actual economic impact from the use of the results of NIOKR in the national economy should be thorough ("science--technology--production--consumption") and one-time, that is, without duplication by years and users, with the annual effect on the economic activity of the enterprises participating in their use. This calculation should be a system of the quantitative reflections of the changes of the expenditures on production and operation, which are governed by the influence of the results of NIOKR, in the documents and ledgers of accounting and in the forms of statistical reporting. The actual economic impact must be established only according to the appropriate documentation, which is a component of the forms and indicators of accounting.

It is feasible to construct the system of accounting of the actual economic efficiency on the basis of the economic elements of the expenditures, since the use for these purposes of the items of the costing is very labor-intensive in connection with the fact that the economy for some items often might not yield to direct localization. The standard method of the accounting of production might promote the simplification of the organization and the performance of the accounting of the actual economic impact.

For the successful accomplishment of the accounting and analysis of the actual economic impact there is needed the precise organization of the document establishment of the deviations from the norms (estimate) of the expenditures on production with an indication of the causes (factors), among which the results of the influence of NIOKR are cited. All the documents for the change of the norms (estimates) should contain a breakdown of the total amount of the changes by factors.

For the purpose of creating the prerequisites for the more precise establishment of the actual economic impact of the new technology which was

created as a result of NIOKR, it is expedient when evaluating its efficiency to stipulate the accounting of the components of the total impact: the reduction of the labor-intensity, the materials-output ratio, the specific capital investments, as well as the reflection of the economic impact of the new technology in the norms, standards, planning and reporting indicators. The accounting of the actual economic impact solves another set of problems: it ensures the comparability of a number of indicators, since they are expressed in value form, makes it possible to disclose more completely the production reserves, the realization of which will promote the increase of its efficiency.

The introduction of the accounting of the actual economic impact from the use of the results of NIOKR is of exceptionally great importance for the formation of an efficient system of the control of the efficiency of NIOKR, for there are ensured the obtaining of reliable information on the amount and place of receipt of the actual impact and the establishment of a feedback which characterizes the influence of science on social production.

The diversity of the types of impact of NIOKR offers, apparently, only two possible ways of evaluating the efficiency of a specific study or development: the evaluation of the most important type of impact in this case with the formation of its other types into limitations, that is, with their use as disciplining conditions; the reduction of all the types of impact to one measurer.

From the point of view of current theory, the solution of the problem of the efficiency of NIOKR is possible only on the basis of a comprehensive (systems) approach. Its requirements stress the need for the accounting during the formation of the method of determining the efficiency of research and development of all the aspects of the manifestation of the efficiency of NIOKR: economic, scientific and technical and sociopolitical, as well as the need to use the criterion of the efficiency of NIOKR, which would ensure their integral evaluation.

Since each type of impact (efficiency) of NIOKR is expressed in the parameters, which are inherent in its nature and reflect quantitative peculiarities, at present nonvalue synthesis is the only possible means of reducing them to an integral indicator. In practice (for example, when establishing the category of quality, determining the technical level and so on) diverse characteristics are compared and ranked most often intuitively.

The need for an integral evaluation of the efficiency of NIOKR arises in comparatively rare cases (for example, the choice of competing scientific and technical problems, and at times also themes, which are of importance only in the long-range future; the comparative evaluation of the activity of competing scientific institutions). From the point of view of the making of administrative decisions a competent theoretical and economic statement of the problem is usually much more important than the demand for an integral evaluation.

There lies ahead much work on the creation of new types of assurance of the determination of the efficiency of NIOKR: methods (the creation of a system of standard and sectorial methods), informational (a standard base, the creation of unified channels of communication, procedures of appraisal), organizational (the consolidation and creation of the appropriate services at organizations and enterprises, the working out of the legal form of the evaluation of efficiency). Here, apparently, it is necessary to recommend as a promising direction the unification and typification of the estimates of the efficiency of NIOKR, which saves the time of the making of estimates, increases their quality and creates the possibility to embrace by them all NIOKR, as well as to use computers.

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DEVELOPMENT OF NON-PRODUCTION SECTOR DISCUSSED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 6, Jun 78 pp 125-128

[Article by T. Dorokhina: "Some Problems in the Development of the Non-Production Sector"]

[Text] The non-production sector of the economy is playing an ever increasing role in the realization of the vast socio-economic program which has been worked out by the party in the field of raising the material and cultural standards of Soviet people.

The labor of the workers of the non-production branches promotes an increase in the goods which are created in material production and also ensures an increase in the amount of the population's consumption by the amount of the services which are provided to it. In addition, it is essential to take account of the influence of the non-production sphere on the dimensions and character of the use of the workers' free time, and, consequently, on the all-round development of their capacities. Some of its branches foster an increase in free time (domestic services), while others promote its rational use (education, health care, culture, art). It can be understood from this that a correct selection of the directions for the further development of the non-production sphere and the precise coordinated work of its branches are important conditions for raising the standard of living of the workers and improving our socialist way of life.

As one of the factors in the development of social production, services, on the one hand, help to increase its efficiency and the amount of national income, and, on the other, bring about a rise in the educational and cultural level of the workers, an improvement of their daily living conditions, rational rest for them, and so forth; that is, they satisfy definite human needs. For this reason, an analysis of the directions of improving the non-production sphere of the economy includes both an economic and a social aspect. This involves: an increase in labor productivity in the sphere of material production and in the amount of national income; a rise in the level of the consumption of services; an improvement of the quality of services; and social results (a rise in

the level of the population's skills and culture, an increase in longevity and in working life, the formation of a communist worldview, and so forth).

The system of planning and managing the non-production sphere is constructed on the basis of a balanced and wide development of all of the branches of the economy. Under present-day conditions the non-production sphere is developing rapidly. Thus, during the years 1961-1976 the number of people employed in it increased by 1.8 times (from 15.8 million people to 28.9 million), while in material production the increase was 1.2 times (from 75.5 million to 88.6 million).^{*} At the same time, capital investments in the non-production sphere are increasing in an intensive manner. The years 1961-1976 alone account for approximately 70 percent of all of the capital investments in this branch of the economy which have been utilized during the years of Soviet power. During the current five-year plan their amount will come to 22.6 percent of the total investments assigned for the development of the economy as a whole. To achieve their maximum effect is an important task in carrying out the course of our party aimed at improving efficiency and quality in all of the elements of the economy.

In planning the development of the non-production sphere especial attention is devoted to the intercoordination of its branches; moreover, not only from the point of view of the fullest satisfaction of the needs for production resources, but also of the solution of important social tasks (for example, an increase in free time). In this connection, the construction of various non-production complexes is being carried out. Thus, for example, a housing complex includes residential houses and facilities for municipal and domestic services, health care, education, culture, and sports. In aggregate, they create maximum conveniences for the population and ensure the fullest and most efficient services.

The most capital intensive branch of the non-production sphere is housing. As a result of the large capital investments in this branch which come to an average of 12-13 billion rubles, around 2.3 million apartments are being built a year, which is making it possible every year to improve the housing conditions of 11 million people. The construction in 1976-1980 of residential houses with a total area of 545-550 million square meters will make it possible to even further increase the supply of well-built housing for the workers.

The following principle is now being followed in the distribution of new housing: for every family a separate apartment. However, despite the enormous dimensions of housing construction, the average area allotted per person still does not correspond to the optimal norm. In order to achieve it and take account of the increased size of the

^{*}"SSSR v tsifrazkh v 1976 g." (The USSR in Figures in 1976), Moscow, Statistika, 1977, pp 176-177.

population housing construction will have to be performed on an even larger scale, which, of course, will require very considerable capital investments.

An increase in expenditures for housing construction is also being caused by the growing rates of the renewal of residential buildings. At the present time the average norm for the annual decommissioning of the country's housing fund comes to 1 percent. The growing cost of housing is also connected with the demands to improve the quality of the houses being built and to improve their comfort and layout. Thus, when construction is adopted in accordance with standard plans with an improved layout the cost of 1 square meter of housing space increases by 5 percent.

Municipal and domestic services play a large role in increasing the population's free time. For example, the time expenditures for housework among those living in houses with all types of municipal conveniences are 30-40 percent less than among those who do not have these conveniences. Today approximately 65 percent of our residential houses are equipped with water, gas, sewage, and central heating. During the Tenth Five-Year Plan cities and other populated points will be more equipped with centralized water supplies, the shift of the housing fund to heating from major supply sources will continue, and gasification will be expanded.

In addition to alleviating housework, the use of domestic services (dry cleaning, laundries, clothing and shoe repairs, and so forth) reduces the time expenditures for housework from 5 to 2.4 hours a day. In addition, the provision of various domestic services also helps to solve another important social problem -- the freeing of women who have the basic concern for performing housework for social production.

Domestic services is a rapidly growing branch. During the years 1965-1976 the amount of domestic services for the population increased 3.8 times (from 1,897,000,000 rubles to 7,115,000,000 rubles)*, while during the Tenth Five-Year Plan it will increase by another 1.5 times, including 1.7 times in rural areas.

The further development of domestic services is closely connected with an improvement of the standard of services and of the quality of order filling. A reduction of the time required to carry out work, improved quality for the latter, and the introduction and application in practice of new and more convenient types of services (for example, filling take-out orders) -- that is, everything that has to do with the quality of services -- depend upon the solution of a whole series of problems. The following may be distinguished among them: a rise in the mechanization level of the branches of the domestic industry and an

*"SSSR v tsifrakh v 1976 g.," p 216.

improvement of the working conditions of their workers; the training of qualified cadres; the attraction of young people and an improvement of the physical plant of special educational institutions; a reduction of labor turnover; the regulation of wages; and a strengthening of the material stimulation of domestic services workers.

The standard of living of Soviet people cannot be imagined without their developed system of education, health care, culture, and art in which more than half of the workers in the non-production sphere are employed. These branches of the economy serve as a base for the rational use of the workers' free time, the intelligent organization of their leisure, and the comprehensive development of their personalities.

The social results of improving the system of education are: the satisfaction of the population's needs for knowledge; and a rise in the educational level which is the result, on the one hand, of the greater demands made by modern social production and, on the other, of the increased needs of the workers themselves for improving their education and skills. The economic effect of public education which directly influences the development of man as a social productive force is expressed in an increase in national income. Every ruble invested in this branch brings 3 rubles of income.

In the USSR 93.1 million people are involved in all forms of education, including: 46.5 million in general educational schools, 3.5 million in vocational and technical education schools, and 9.6 million in higher and secondary specialized educational institutions. Enormous resources are being spent by the state to improve the country's educational system. At the present time they amount to more than 26 billion rubles a year. By 1980 new educational schools for no less than 7 million pupils will be built, including for approximately 4.5 million pupils in rural areas. In order to economize state funds it would be desirable to build enlarged institutions (of course, with regard to the number of inhabitants in the area where the new construction is planned, the existence of roads, means of transportation, and so forth). Thus, the estimated cost of the construction of general educational schools for 1,280 pupils compared to schools for 960 pupils decreases per pupil by 60 rubles, or by 8 percent, while the operational expenditures are reduced by 3-4 rubles, or 2-3 percent a year.

The further development of the system of public education has to respond to the demands of scientific and technical progress, of a steady rise in the technical, cultural, and educational levels of the workers, and of an improvement of the training of qualified cadres of workers and specialists. Modern socialist production which is characterized by constant technical and organizational changes is in need of workers who possess a wide range of technical and technological knowledge, who have mastered related occupations, and who are able to rapidly adapt to the conditions of the intensive development of science and technology.

This presupposes a constant rise in the educational level of the workers. The shift to universal secondary education which has been basically completed in the country is the real basis for improving the effectiveness of the education of the workers and others in the mass occupations. The vocational and technical schools whose graduates simultaneously receive an occupation and a secondary education have become a very auspicious form of training highly skilled workers from among the youth. During the Tenth Five-Year Plan the admission of students in these educational institutions will increase by no less than 2.5 times. Greater attention is being given to the level of the training of specialists with a higher and secondary specialized education. During the five-year period 9.6 million of them will be graduated.

Among our social tasks there is none more important than concern for the health of Soviet people. Our country has a developed health care system. The workers receive free, qualified medical care through the wide network of its institutions. In 1976 there were 33.4 doctors for every 10,000 people in the USSR, while in the United States -- the leading capitalist country -- the figure was 21 doctors per 10,000. The new Constitution of the USSR registers the right of Soviet people to health care which is guaranteed by the state health care system and by the performance of measures aimed at preventing sickness and prolonging active working life.

It is difficult to overestimate the effect which is obtained by society from the development of health care. Its social result is expressed in an improvement of the health of the workers, the preservation of a high level of fitness for work, and an increase in longevity. According to the calculations of economists, the increase in labor resources alone resulting from decreased sickness and mortality provides around an additional 20 percent of national income, while every ruble of expenditures for the development of health care yields 2.2 rubles of conventional profits.

During the last 15 years state expenditures for health care and physical culture have increased by 2.5 times and in 1976 came to 14.6 billion rubles. However, a number of unsolved problems in the field of medical services require further increases in the appropriations for this branch of the economy. The social development program which was adopted by the 25th Congress of the CPSU calls for bringing the total number of hospital beds to 3.3 million by 1980. But an increase in the number of hospital beds can be one of the indicators of an improvement in the quality of medical care only if new space is added at the same time. Therefore, during the current five-year plan, along with the reconstruction of hospital institutions, the basic attention is being devoted to the construction of large new specialized and multi-profile hospitals and to equipping them with modern medical equipment. Just as with the enlargement of educational institutions, the construction of large hospitals produces a substantial economic effect

and an improvement of the quality of services. The cost (per bed) of building a 300-bed hospital in a city is 40 percent cheaper than the construction of a 50-bed hospital.

An improvement of the quality of medical care depends to a decisive extent upon the existence of qualified doctors and middle-echelon medical personnel. Compared to 1940, at the present time the average number of people per doctor has been reduced in the USSR by 4 times and by 1980 will come to 263 people. However, even this work load is still rather heavy. The work load of district internalists is especially great. The decree of the CC CPSU and Council of Ministers USSR, "On Measures to Further Improve Public Health Care," provides for, beginning with 1978, the breaking up into smaller units of the territorial internalist districts, bringing the number of the adult population cared for by a district internalist to an average of 2,000 people in 1982, and to 1,700 people in 1985. The decree also enjoins a wide use of equipment which eases the work of medical workers and improves the care of the sick. Toward this end, compared to 1977, by 1980 the production of medical equipment will increase by 1.7 times, and by 1985 by 2.5 times, and there will be a substantial increase in the production of the most important medicines.

An improvement of the quality of the life of Soviet people also presupposes a better organization of their cultural leisure. Compared to 1940, movie-going has increased by 5 times, theater-going -- by 1.4 times, museum visits -- by 4 times, and the number of books -- by 4 times. The decisions of the 25th Congress of the CPSU provide for a further increase in the role of socialist culture and art in the ideological-political, moral, and esthetic education of Soviet people, and a strengthening of the material base of cultural institutions, especially in rural areas. An expansion of the network of cultural institutions (movies, theaters, clubs, houses of culture, libraries) will create great possibilities for satisfying the diverse spiritual needs of the population and for cultivating in it a culture of leisure. The latter is now taking on exceptional importance, for the rational use of free time is closely connected with the level of development of the workers themselves to spend their leisure time wisely and usefully.

The construction of cultural-educational institutions equipped with the latest equipment is a no less important task in organizing the mass rest and cultural services of the population. Some of the buildings employed as cultural institutions are still in an unsatisfactory condition and require repairs. They are lacking the necessary equipment, furniture, and musical instruments. Practice is urgently posing the question of the construction of new clubs and the reconstruction of existing ones so that they are fully in accord with the requirements of genuine rest for the population, especially the

youth (a foyer, movie auditorium, or a lecture hall and rooms for club work and sports could be used to create a large dance hall).

Such types of art as movies and the theater are especially popular with the public. In order to improve movie services for rural inhabitants the buildings where films are shown have to be put into the proper order and provided with the appropriate equipment, furniture, and fuel. In the small populated points it would be useful to make wider use of mobile movie units. As for theaters, there is probably no need to substantially increase their numbers. It would be desirable in every oblast center to have a theater with the latest equipment, good acoustics, and a sufficiently large spectators hall. The residents of nearby populated points could come here to see plays or performances by local actors collectives, and also performances by central groups on tour.

A whole series of services which are essential to the life of modern man are being created in the non-production sphere. An analysis of even some of its problems provides grounds for assuming that a further improvement of this branch of the economy is connected with a strengthening of its role not only in increasing the effectiveness of social production, but also in raising the material and cultural levels of the workers. The planning of the amount and structure of capital investments in the branch of services has to take fuller account of the growing needs of the population for various services and spiritual goods. The selection of the optimal direction of capital investments in these branches is determined by both economic and social results. An acceleration of the growth rates of the non-production sphere of the economy, by expanding society's possibilities for a fuller satisfaction of needs and the all-round development of personality, helps to create the conditions for raising the standard of living of Soviet people and improving the socialist way of life.

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PROBLEMS IN BANK INTEREST AND INTEREST RELATIONSHIPS

Moscow DEN'GI I KREDIT No 6, Jun 78 pp 47-51

[Article by Prof A. P. Zaytsev]

[Text] Among many problems associated with providing optimum conditions for operation and development of the socialist economy, bank interest and organization of interest relationships are important. Because loan relationships are objectively governed by the entire system of socialist expanded reproduction, loan interest is one of its important factors. Interest and interest relationships pertaining to savings and loans are mediated by the formation and utilization of the loan fund, and in this connection they have a direct relationship to many aspects of the effectiveness of socialist production.

We can observe, in our economic literature and to a certain extent in practice, a certain understatement of a number of problems in interest and in organization of interest relationships. Why does the USSR State Bank charge 2% for some loans, 3% for others, and 8-10% for still others? Why do savings banks pay 2% interest for conventional deposits and 3% for term deposits? To what extent is this level too high or on the other hand too low, and does it correspond to the conditions in which the Soviet economy is functioning today? How effective are the functions of interest in the socialist economy? These questions are insufficiently illuminated in the economic literature.

A certain understatement of the interest problem often noted in the economic literature is apparently associated with the fact that in socialism, the relationships of interest payment and interest charges acquire an externally formal nature, especially when an enterprise and a bank participate in these relationships, inasmuch as socialist enterprises functioning on the basis of state ownership act as both creditor and debtor.

Marxist-Leninist economic science views interest in capitalism as the price of loaned capital, though a specific rather than a conventional price. Conventional price is a monetary expression of value, but

loaned capital itself has value. This is why Marx called interest an irrational form for the price of loaned capital. The price of loaned capital is represented by part of the added value paid by a capitalist financier.

In socialism interest is the "price" of a loan, a payment for use of borrowed assets. But because the loan itself or the borrowed assets are also a sum of money, then interest represents the relationship of two monetary entities--the total loan and total paid interest, and it has come to be called the interest rate. The interest rate and the size of the loan are the main factors defining the absolute value of interest. Socialist ownership and the centralized nature of the socialist economic system preclude market regulation of interest relationships. In socialist conditions interest applicable to all forms of credit relationships is set centrally by the state. However, centralization does not mean arbitrariness in setting interest rates and in regulating interest relationships. The economic conditions and circumstances defining the possible limits and restrictions of interest rates doubtlessly exist in socialism as well.

A number of articles have been written in recent years examining the interest problem and suggesting the grounds for optimum interest.* It would be a good idea to dwell not so much on the grounds for the optimum interest rates** as much as on the problems of organizing interest relationships--that is, the relationships of paying and charging interest. There is no need to prove that not only the interest level but also the process of charging and paying interest and organizing this function has important significance, though without a doubt these two aspects of the organization of credit relationships are associated rather closely.

As is true for credit relationships, two sides always participate in interest relationships--the creditor and the debtor. In a loan transaction the creditor furnishes monetary assets to the debtor. Settling the loan account, the debtor pays total interest accrued to the creditor. Credit and interest relationships are closely intertwined, but their mutual relationships may be rather different. The simplest case is a single-payment loan offered for a particular term. Interest is paid when such a loan is settled. In this case the loan and the interest paid are lumped together, though they are distinguished from one another. The case most often encountered in the mutual relationships of creditors and debtors is where loan and interest

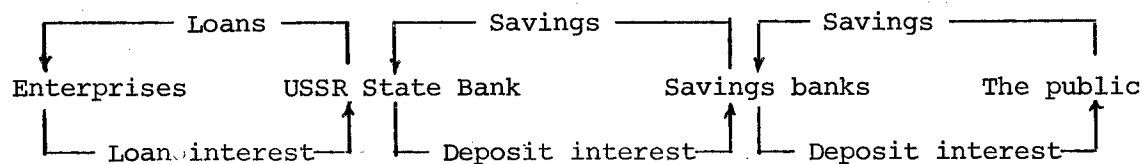
*See for example VOPROSY EKONOMIKI, No 6, 1970, p 20; DEN'GI I KREDIT, No 3, 1972, pp 32,37.

**Concerning this problem, see DEN'GI I KREDIT, No 10, 1976, p 30.

relationships are rather clearly delimited. This is the case, for example, in the mutual relationship between a bank and enterprises receiving loans. The loan process is continuous. The enterprise always possesses, within its turnover, bank assets in the form of offered loans, and every enterprise periodically pays interest accrued on such loans to the bank.

Credit and interest relationships are even more intertwined and delimited in the mutual relationships of savings banks and depositors. For the overwhelming majority of depositors the size of the initial deposit and the total interest accrued on the deposit are lumped together into a single sum which most depositors handle without making any sort of distinctions between its parts. In essence the total interest paid on deposits is a factor promoting growth of the deposits themselves.

In general form the mutual relationships between loan and interest relationships encountered in formation and utilization of the loan fund can be represented as follows:



Thus from the standpoint of the subject--that is, the persons participating in the process of forming and utilizing the loan fund, there are three basic types and, correspondingly, three spheres of credit and interest relationships: Relationships between enterprises receiving loans and the USSR State Bank, relationships between savings banks and the public, and relationships between the system of savings banks and the USSR State Bank. Understandably these three types and three spheres of credit and interest relationships are far from identical in relation to their economic content, their functional purpose, and their forms of organization. The mutual relationships between loan recipients and the USSR State Bank involve, on one hand, socialist enterprises and business organizations of various sector and administrative membership and typified by different technical, economic, and organizational levels and, on the other hand, the USSR State Bank--a centralized organization acting within the framework of a single charter and single rules governing its activity. Mutual relationships between the public and savings bank involve, on one hand, individual citizens of different social strata and occupations, of different sex, age, and so on and, on the other hand, a system of savings banks operating within the framework of a single set of rules. Finally credit and interest relationships pertaining to the system of savings banks and the USSR State Bank are the binding link permitting

transformation of accumulated savings (with the goal of investing them into the national economy) into one of the sources of the loan fund.

Interest relationships in all three spheres are closely associated with each other: Interest paid by enterprises serves as a source of interest paid to savings banks for depositing the assets in their accounts with the USSR State Bank; interest earned by savings banks serves in turn as the source for payment of interest to the public for its deposits. Thus a single chain of interest relationships is created, in which the initial link of the chain is the individual enterprise and the last link is the savings bank depositor.

Two periods differing significantly from one another can be noted in the history of interest relationships. The first was one of a decline in savings and loan interest rates lasting until 1955, and the second was characterized by a rise in loan interest rates following 1965.

The fact that prior to 1936 savings interest rates even exceeded the loan interest rates and, on the other hand, that following 1965 a trend toward higher loan interest rates coupled with a constant level of savings interest rates is typical. This indicates that although all forms of interest relationships are closely interrelated, this relationship is not absolutely rigid, instead exhibiting several variants. Interest relationships in various spheres, particularly between enterprises and the bank and between savings banks and the public, maintain a certain amount of independence in relation to one another, which should not preclude the possibility for different approaches to the problems of their regulation.

In this connection let us examine some of the problems of organizing interest relationships between the State Bank on one hand and socialist enterprises on the other--relationships that are important from the standpoint of the effectiveness with which the loan fund is utilized. In terms of economic content, the relationship of interest payments and charges existing between enterprises and the bank are relationships of redistribution of national income or, to put it more precisely, redistribution of the value of added product, while interest itself is a form of such redistribution existing in addition to payment for capital, deductions from profit, turnover tax, and so on. However, this generalization does not at all preclude the great uniqueness of interest within the system of redistribution relationships, uniqueness stemming from its specific functions.

As we know, loan interest performs two basic functions. The first is to impart the necessary profitability to loan operations. In this function interest serves as one of the sources of income of the

USSR State Bank, and it is utilized to cover overhead expenditures, to pay interest for passive operations, and to form bank profit. The second function of interest is economic influence upon loan receiving enterprises, encouraging them to utilize their obtained loans most effectively.

These two functions are associated with one another, but at the same time they maintain a certain amount of independence. Thus loan interest relationships could be organized in such a way that the outlays of maintaining the bank administration and bank profit would be covered completely by interest, which at the same time would not have an influence on loan receiving enterprises, forcing them to utilize their loans effectively. Interest relationships can also be structured such that interest would encourage the enterprise to utilize its loans effectively, but all bank expenses would not be covered. While from the standpoint of the first function the corresponding level of interest rates has the main significance, from the standpoint of the second function the source of interest payments has greater significance than this level.

Two sources of loan interest payments have been used in our practice in different periods of time: Profit, and assets attributed to production cost. Interest payment out of profit was utilized from the moment the credit system was organized and until the credit reform of 1930-1932. During this period interest was a noticeable item within the distribution of the profit of enterprises. Because relationships between enterprises and the budget pertaining to profit deductions were strictly fixed, interest was a significant factor defining the volume of profit remaining at the disposal of enterprises and utilized directly for their needs, including material incentives. It was precisely for this reason that enterprises were interested in utilizing loans with maximum effectiveness.

After the credit reform of 1930 assets treated as product cost began to be utilized as the source of loan interest payment, and consequently interest ceased to participate directly in profit distribution, in formation of that part of the profit which was to remain in the hands of enterprises. Of course treatment of interest payments as part of product cost should have made enterprises interested in economizing on this item of outlays. However, the proportion of this item within the total production outlays was insignificant, meaning that it could not have a noticeable effect on decreasing product cost. This circumstance could not but have an effect on credit relationships and on the relationships of the enterprises themselves to the loans received.

Transition to the new methods of planning and economic stimulation in 1965 was accompanied by review of many elements of interest relationships between the bank and enterprises. In addition to heightening interest rates for some forms of loans, a decision was made to relate

interest not to product cost but rather to profit, as was the case prior to 1930. These measures produced some positive results. In an effort to economize on interest payments, some enterprises began to pay off their loans early when unutilized assets were available, or they refrained from negotiating new loans when a surplus existed. However, on the whole the influence of interest and interest relationships on the effectiveness with which borrowed assets were utilized was found to be insufficient. The desire to economize on loan interest paid out did not become sufficiently widespread. The reason for this lay in the fact that as before, the proportion of paid interest in profit was extremely low. Thus it did not exceed an average of 1.7% in 1965 in the profit of industrial enterprises, while owing to a significant increase in the profitability of industry it decreased to 1.4% in 1970. Given this situation, the effect of interest paid out on the size of the computed profit, and through it on the size of the economic stimulation fund turned out to be insignificant. Thus given a $\pm 20\%$ deviation of total interest paid out from the planned amount, economic stimulation funds change within $\pm 1.2-2\%$.

Starting with 1973 stimulation funds began to be formed on the basis of standards of deductions depending not on computed but rather on total profitability. In such conditions the effect of loan interest upon debtors weakened even more.

Naturally loan interest rates could have been increased to a level at which they would have been quite tangible to every enterprise, even one with minimum borrowed assets. However, it should be realized that in relation to profit distribution, deductions from profits into the budget would be the key item and that a rise in interest would automatically reduce the total of these deductions without affecting items such as deductions into stimulation funds or profit remaining at the disposal of the enterprises. In this connection any sort of rise in loan interest rates would unavoidably come into conflict with the interests of the state budget, particularly if this increase is significant. It appears important to me to emphasize this issue because a large number of economists have suggested and substantiated proposals for a rather significant increase in loan interest rates with the goal of intensifying economic influence upon loan receiving enterprises. Thus V. I. Rybin* suggests increasing interest rates for planned loans to 9-11% (by 4.5-5 times), to 5.6% for (raschetnyy) credit (by 5-6 times), to 13-15% for unplanned credit (by 2.3-3 times), and to 16-18% for overdue loans (1.8-2 times). Implementation of such proposals would unavoidably significantly reduce the proportion of deductions from profit into the budget, but the effectiveness of this measure would not be proportional to the amount to which interest is increased.

*Rybin, V. I., "Kredit i raschety v usloviyakh reformy" (Credit and Accounts in the Conditions of the Reform), Moscow, Izd-vo Finansy, 1970, p 109.

It appears to me that the most radical way to solve this problem would be to relate interest paid out not to profit but rather directly to the economic stimulation funds.* As we know economic stimulation funds are the part of profit in which enterprise collectives are interested. Given the existing conditions for formation of the funds, this interest of theirs does not extend to all profit, and for this reason relating total interest paid out to profit is on the whole arbitrary, not affecting the interests of the enterprise.

By changing the source from which loan interest is paid, by utilizing the funds directly we eliminate this factor, since a greater mutual relationship is established between total interest and the final size of stimulation funds. As with overexpenditure, all economization of interest paid out resulting from greater effectiveness or, on the other hand, unsensible utilization of loans would automatically and immediately affect the size of stimulation funds. Thus interest relationships would become more realistic economic relationships even independently of interest rates and without having to increase above the evolved level.

The following questions would naturally arise: How reasonable and suitable would it be to reduce stimulation funds by the total loan interest paid out? Would this not limit the functions of the funds, and would it not diminish their role in stimulating effective work by the enterprise as a whole? I believe that such apprehensions are groundless; economic stimulation funds have a tendency toward continuous and increasing growth in relation to both profit and the wage funds on one hand and total loan interest paid out on the other. This tendency would become even stronger when the funds themselves are used as the source for paying loan interest, and enterprises would become interested in maximum economization of the amounts paid out through more-sensible use of borrowed working capital.

Thus implementation of such a measure in the interest relationships between an enterprise and the bank would unavoidably be accompanied by an improvement in the use of working capital, by an increase in the enterprise's profitability as a result of this, and by enlargement of economic stimulation funds. In the end, interest paid out from these funds would be compensated by growth of the funds themselves.

In addition to this advantage, we enjoy other possibilities when we relate interest payments to economic stimulation funds. Sufficiently tangible interest of loan receiving enterprises in effective utilization of the loans would make it possible to remove many of the administrative conditions and restrictions existing today from bank credit functions and to make the latter more flexible and elastic while simultaneously simplifying the credit operations of the

*See also DEN'GI I KREDIT, No 7, 1969, p 18.

USSR State Bank, making them less expensive, and heightening their effectiveness. Were we to accept the argument that implementation of this measure would take a significant proportion of stimulation funds out of the hands of the enterprises and would consequently infringe upon their rights, then we could propose, as a compromise and perhaps an interim variant of the solution to this problem, paying loan interest on a proportionate basis out of profit and out of stimulation funds. Even if only half or one-third rather than all of the interest is paid out of the funds, in this case the influence of interest upon loan receiving enterprises would still increase significantly.

Of course we must arrive at a realistic understanding of the objective and subjective difficulties of implementing such a proposal, even though it would doubtlessly produce an economic impact. Were we to suggest to a group of enterprises two alternatives for organizing loan interest payments--out of profit or out of economic stimulation funds, we could say with complete confidence that they would all prefer to stick with the existing order and argue against paying interest out of stimulation funds. The corresponding ministries to which enterprises are subordinated would obviously take precisely the same position as well. It should be added to this that it would be more suitable at first glance to pay interest out of profit and not out of the funds from the point of view of the financial interests of the State Bank itself, since in this case all conflicts would be excluded from the mutual relationships between the bank and the enterprise.

In these conditions the idea of paying loan interest out of stimulation funds could be implemented either just by imposition from above in relation to both loan receiving enterprises and bank institutions, or voluntarily; in the latter case enterprises expressing a desire to switch over to this system would be afforded corresponding privileges and advantages in bank credit. It appears to me that a voluntary changeover would be more sensible and effective. It would allow us to work out the details of the changeover more efficiently, avoid possible errors, and develop and substantiate proposals for correcting the standards of deductions into economic stimulation funds as well as the loan interest rates themselves.

As far as the privileges and advantages that are to be afforded to loan receiving enterprises upon transition of payment of interest out of stimulation funds, in my opinion they could be reduced to the following. First, the standards of deductions into the material incentive fund, which compensate for enterprise expenditures which would not be made from this fund, could be increased.

The concrete dimensions of this increase could be set in each sector or even individually for particular enterprises depending on the

absolute and relative volume of bank loans utilized. It would be extremely important to make the increase in standards of deductions into the material incentive fund mandatory to the appropriate ministries, and to apply them irrespectively of the standards that have evolved to date and utilized for some other reasons. There would be no need to prove that were some enterprises given the choice of paying loan interest out of profit according to the generally established order or out of the material incentive fund on the condition that the standards of deductions into this fund would be increased, many of them would prefer the latter.

Second, were we to establish the order of paying loan interest out of the funds, it would logically become suitable to introduce interest into current accounts as a deduction from economic stimulation funds. There is in fact no economic sense to relating interest to profit in current accounts. However, it is an entirely different matter when this interest is related to economic stimulation funds: The interest of enterprises in accelerating turnover of working capital and in maintaining the largest possible financial remainder in the current account would acquire an entirely real and concretely tangible nature. This would serve as an important factor for heightening solvency, intensifying payment and accounting discipline, accelerating turnover of working capital and, on this basis, increasing the effectiveness and profitability of production.

Third, enterprises expressing a desire to switch to paying loan interest out of stimulation funds could be furnished with an advantageous, simplified order of handling typical bank loan transactions, to include issuing and paying off loans, monitoring the state of the securities, and so on.

Making the USSR State Bank institutions themselves interested in switching enterprises to interest payment out of stimulation funds could have important significance to the realization of this idea. Without going into all of the details of this issue, we can suggest, as an example, separate accounting of assets entering the budget as interest from profit and interest from funds, a more advantageous, incentive order of expenditure, for maintenance of the bank staff, of interest paid from funds as compared to interest paid from profit, and so on.

Without a doubt such advantages and privileges could make both the enterprises themselves and Gosbank institutions themselves interested in converting to interest payment out of stimulation funds, to implementation of interest relationships which would promote improvement of the credit mechanism, intensify its influence upon socialist enterprises, and heighten the role of the State Bank in the USSR national economy.

TRAFFIC ON SAIMA CANAL SHOWS DRAMATIC RISE

Helsinki HELSINGIN SANOMAT in Finnish 6 Aug 78 p 25

[Article by Eino Kayhko: "Log Floating Continues to Prevail on Canal, Saima Traffic Does Not Entice Finnish Ships"]

[Text] Yesterday marked the 10th year since the rebuilt Saima Canal was put into operation. Canal Chief Seppo Koivupuro characterizes these years as an era of developing traffic. According to him the amount of traffic has now reached the proportions for which the canal was originally designed.

"It is difficult to say whether this period has been unreasonably long. Indeed, we did, however, imagine it to be shorter," states Koivupuro.

Koivupuro frequently repudates the publicly proposed argument that the minimum goal for traffic should have been established at a million tons. He emphasizes that in the economic reports made prior to the decision to construct the canal it states the traffic on the canal will increase with relative certainty to 680,000 tons and under certain conditions to approximately 1.2 million tons.

In the last few years the traffic has fallen between these figures. The year before 700,000 tons was exceeded and last year the amount of traffic was nearly 800,000 tons. This year it is estimated that the traffic will increase to approximately 900,000 tons.

To date the majority of traffic on the canal has been made up of log floating. In the last 5 years this has fluctuated between 300,000-370,000 tons. It is doubtful that log floating will increase anymore and any future increase will be made up of ship traffic.

Soviet ships have comprised a definite majority in the traffic of the canal. For example, Soviet ships made up 87 percent of ship transport last year. This year their share of the traffic may drop off a few percentage points.

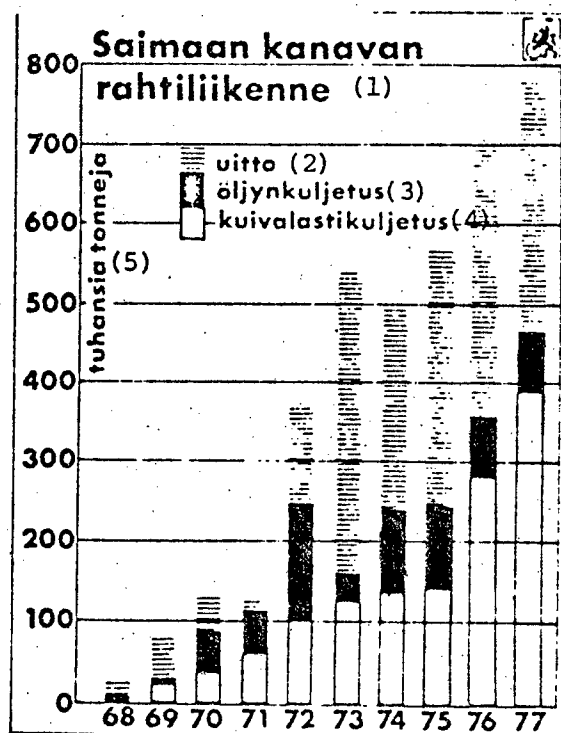
According to Koivupuro the reason for this predominant situation is that the Finns do not have any ships suitable for the canal. "Apparently the waterways of the Saimaa are too small for traditional ships and for this reason Finnish ship suppliers have not been motivated to build new ships."

Small Ships Are Decreasing

According to Koivupuro the number of ships flying the Finnish flag has decreased since the canal has been open. There have been only two new Finnish ships added to the traffic of the canal, the Esso-Saimaa and the Norppa. The Soviet Union, for its part, has procured 10 ships built in Finland and a Ladoga-type ship designed for the canal traffic.

A barge equipment committee established by the Ministry of Transportation, which completed its report in June, has directed its attention to the paucity of Finnish ships on the canal. In it, it states that since 1962 Finnish small-tonnage ships have decreased by nearly 50 percent. Also the average age of these ships has increased alarmingly. The level of domestic small-tonnage traffic has fallen off and especially on the Saimaa Canal it has fallen to a very low level.

Already at the opening ceremonies of the canal the then Minister of Transport Paavo Aitio hinted at the benefit of using tugboats on the canal. However, the matter has been promoted extremely slowly since the first experiments were conducted only a year ago.



Key:

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|--------------------------------|------------------------------|
| 1. Freight on the Saimaa Canal | 4. Transporting of dry cargo |
| 2. Log floating | 5. Thousands of tons |
| 3. Transporting of oil | |

Paw Timber by Soviet Tugboats

There has been tugboat traffic on the canal for quite sometime now. Soviet Shluzovoy-type tugboats have transported raw timber from Viipuri [Vyborg] to the industrial plants of Lappeenranta and Imatra for 3 summers already.

The Barge Equipment Committee also analyzed the possibilities for traffic development on the canal. In the report it states that traffic between Finland and the Soviet Union will increase to 600,000 tons in the near future. It is estimated that the amount of trade with the West and domestic traffic will increase to 400,000 tons without counting log floating.

If the navigation season is extended to 10 months, traffic would increase by approximately 300,000 tons. If in addition to this, a mother ship traffic could be put into operation, the amount of traffic could be increased by another 250,000 tons. Thus in its report the committee ends up with a total ship traffic of 1-1.5 million tons.

Icebreaker on Procurement List

For the development of canal traffic the committee proposes the procurement of 6-8 motorboats or motorized barges, 10-11 barges, 2-3 tugboats, and 1 fresh water icebreaker, whose total value is 100-125 million markkas. According to the committee the first order of business should be the procurement of three motorboats or motorized barges as well as five barges and one tugboat.

The purpose of the icebreaker is to keep the canal open during the winter also. Before procuring an icebreaker the intermediate goal is to extend the navigation season from 8 months to 10 months.

According to Koivupuro in addition to an icebreaker, compressed air can be used to keep the canal open. "The extension of the navigation season is primarily dependent on economic factors. The necessary equipment and techniques can be found."

In connection with the construction of the canal a 600-kilometer long deep-water network was dredged, which makes it possible to transport freight deep into the country. Also according to Koivupuro the Saimaa's harbor situation is quite good. The primary project at this moment is the industrial harbor of Varkaus, for which government loans have already been granted.

The harbor situation on the southern Saimaa improved this summer when the industrial port of Kaukaa was expanded and the Rapasaari harbor in Lappeenranta as well as the Vuokse harbor in Imatra underwent improvements for inclusion in the traffic of the canal.

Koivupuro estimated that passenger traffic on the canal this summer will remain at approximately the same level as last year or approximately 66,000 passengers. According to him passenger traffic to Viipuri could be

developed by excursions which would entail a boat trip one way and a bus trip on the return. He also hopes that the requirement of a visa will be dropped for pleasure boats.

The annual expenditures of the Saimaa Canal Office are approximately 15 million markkas. In addition to the canal, its area of responsibility also includes certain other obligations, among other things, the dredging of a channel in Saimaa. Of the total expenditures the canal takes up 8-9 million markkas. The annual income of the canal is approximately 2 million markkas. The canal employs 160 people year-round.

The annual expenditures of the canal also include a rental fee of 180,000 rubles to the Soviet Union for rented areas. And if traffic exceeds 1 million tons, the annual rent is increased to 210,000 rubles.

Over the years the profitability of the Saimaa Canal has been the subject of ridicule. However, people's attitudes toward the canal have changed over the years. "Prejudice and a disparaging attitude have gradually changed into interest. Seldom does one hear insults anymore," says Koivupuro.

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